METHOD AND SYSTEM FOR ECONOMICAL E-COMMERCE SHOPPING TOKEN FOR VALIDATION OF ONLINE TRANSACTIONS

FIELD OF THE INVENTION

[0001] The present invention is directed generally at an automated method for creating a contract and specifically at a method for creating a contract between the buyer and the seller of an e-commerce transaction.

BACKGROUND OF THE INVENTION

[0002] The Internet and online commerce have revolutionized the way people shop. Shopping over the Internet is both more convenient and more cost effective than shopping at a physical store. However, one of the major problems with shopping over the Internet is that there is not a reliable method for proving what goods were ordered, the promised delivery time, and other important purchase details.

[0003] Purchases made in a physical store are different from online purchases. When making a purchase in a physical store, the buyer knows what he is purchasing because he can pick up and examine the item. There is no delay in shipment because delivery and payment of the item occur simultaneously. When the buyer pays for the item, he receives a receipt, which is proof of purchase of the item. In addition to a transaction identification number, a receipt from a physical store typically has one or more authenticating features such as a watermark. If the buyer attempts to return the item, the seller can verify the authenticity of the receipt through the authenticating features on the receipt. When the authenticating features are present on the receipt, the seller does not have to look up a transaction number in order to verify the authenticity of the receipt.

[0004] By contrast, online buyers are not able to pick up and examine the item purchased. Instead, the buyer relies on illustrations, pictures, or descriptions of the item by the seller. In an online transaction, there is a delay between payment and receipt because the buyer pays for the item, then the seller ships the item, and then the buyer receives the item. In an online transaction, the seller typically emails the receipt to the buyer or presents the receipt in the form of a printable webpage. The email or webpage receipt does not contain authenticating features that are present in the physical store receipt. An online buyer can easily modify the email or webpage receipt by copying the text of the email or webpage to a word processing document and then changing the terms of the receipt. If an online buyer attempts to return the item to the seller, the seller has no way of verifying authenticity of the receipt by merely looking at the receipt. In order to verify authenticity, the seller must look up the transaction identification number. Therefore, a need exists for a method of creating a receipt for an online transaction that cannot be modified by either party after the buyer and seller agree on the contract terms.

[0005] One of the biggest problems with online shopping is that the seller does not specify exactly when the item will be shipped or exactly when the buyer can expect to receive the item before the buyer agrees to purchase the item. This is frustrating for potential buyers to whom the delivery date is an important issue when making an online purchase. For example, if the item purchased is a gift for an event such as a birthday, anniversary, or special holiday such as Christmas or Hanukkah, then the item has significantly more value if received before the holiday or event rather than after the holiday or event. Even when a purchase is not for a specific holiday or event, buyers are more comfortable with online purchasing when the buyer has an affirmative statement regarding the terms and details regarding the goods purchased. Therefore,

a need exists for a method for recording the purchase and delivery details for an online transaction in the contract before the buyer agrees to purchase the item.

[0006] When businesses purchase goods online from other businesses, the buyers are typically purchasing large quantities of goods. For example, an automobile manufacturer may purchase engine bearings in 100,000 unit lots from a bearing manufacturer. In that case, complex computer applications determine the terms of the agreement between the buyer and seller. These terms include the quantity purchased, the purchase price, expected delivery date, shipping terms, arbitration clauses, and many other details of the contract between the parties. While these complex computer applications are adequate for business-to-business transactions, they may be too expensive for business-to-consumer or consumer–to-consumer transactions. Therefore, a need exists for a method for recording the contract details between a buyer and a seller in a business-to-consumer or consumer-to-consumer transaction.

[0007] The use of trusted third parties in online purchases is well known in the art. For example, the online financial institution PAYPAL® allows online buyers to pay for goods through the PAYPAL® website. When the buyers pay for goods through the website, the buyers have a record of the transfer of funds from the buyer to the seller. Similarly, VERISIGN® is an online certificate authority that certifies public keys to parties desiring to use public key cryptography such as encryption and/or digital signatures. Both the buyer and the seller are more comfortable with the online transaction when part or all of the transaction occurs through a trusted third party. Therefore, a need exists in the art for a method of verifying the details of the terms of a contract in a business-to consumer or consumer-to-consumer transaction through a third party.

[0008] In most commercial and consumer transactions, the buyer is the party who needs to prove the terms of the contract to the seller. If the seller has a policy regarding the warranty, service, or return of the goods, it is in the buyer's best interest that these details be included in the terms of the contract. It is also in the buyer's best interest for the buyer or a trusted third party to store the receipt electronically in a properly indexed file. Therefore, a need exists for a method of storing an electronic receipt containing the warranty, service, and return details on the buyer's computer or on a trusted third party's computer.

[0009] The prior art has addressed the issue of improving the online purchasing process. For example, United States Patent Application Publication 2003/0093372 (the '372 application) entitled "Customizable Offline Payment Plug-In for Payment Server" discloses a method for supporting uncommon payment protocols. The '372 application discloses a method by which a seller can accept payment methods such as collect on delivery (COD). However, the '372 application does not disclose a method for capturing other important contract details and terms regarding an online transaction. Therefore, a need still exists for a method for capturing and verifying the details and terms regarding an online transaction.

[0010] United States Patent 6,330,550 (the '550 patent) entitled "Cross-Media Notification for E-Commerce" discloses a method for facilitating a secure transaction between two parties. The '550 patent discloses a method that utilizes user identification codes to secure the transaction. However, the '550 patent does not disclose a method for capturing other important contract details and terms regarding an online transaction. Therefore, a need still exists for a method for capturing the details and terms regarding an online transaction.

[0011] PCT application publication WO 02/35758 A2 (the '758 application) entitled "Identity Insurance Transaction Method" discloses a method for verifying the identity of a party

to a transaction. The '758 application discloses a method by which one party can verify the identity of another party in an online transaction. While the '758 application makes online buyers more comfortable with the purchasing process, the '758 application does not disclose a method for recording all of the details and terms regarding an online transaction. Therefore, a need still exists for a method for recording the details and terms regarding an online transaction.

[0012] Consequently, a need exists in the art for a method for recording the contract details between a buyer and a seller in a business-to-consumer or consumer-to-consumer transaction before the buyer agrees to purchase the goods. The need extends to a method for electronically recording the purchase and delivery details for an online transaction with the buyer or a third party. A need also exists for a method of verifying the details, such as the warranty, service, and return policies, of a contract in a business-to-consumer or consumer-to-consumer transaction. Finally, a need exists for a method of creating a receipt for an online transaction that is not modifiable by either party after the parties agree on the contract terms.

SUMMARY OF THE INVENTION

[0013] The present invention, which meets the needs identified above, is a method for creating a read-only shopping token that is a digitally signed record of the contract between the buyer and the seller. The software embodiment of the present invention is a Shopping Token Program (STP) that creates an XML file for the shopping token. The STP adds the seller's personal information, information regarding the goods purchased, and the seller's terms for the transaction to the XML file. The buyer then adds his personal information to the XML file. The buyer and seller are then given an opportunity to review the terms in the XML file. If the parties do not agree with the terms of the contract, the STP allows the parties to modify the terms of the

contract. When the buyer and seller agree on the terms of the contract, then the buyer and seller both digitally sign the XML file.

[0014] Once both the buyer and the seller have digitally signed the XML file, the STP converts the XML file into a shopping token. The shopping token is a read-only document stored on the buyer's computer, the seller's computer, and/or on a trusted third party website. The shopping token is in a format such that a user cannot copy-and-paste the subject matter of the shopping token. In other words, the STP encrypts the shopping token under its own key so that no one can read the encoding. Any attempt to alter the shopping token renders the digital signatures invalid. Thus, the shopping token is affirmative proof of the terms and details of the agreement between the parties, including the payment type information, delivery terms, and any other contract terms the parties decide to add to the shopping token.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself, however, as well as a preferred mode of use, further objectives and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

[0016] FIG. 1 is an illustration of a computer network used to implement the present invention;

[0017] FIG. 2 is an illustration of a computer, including a memory and a processor, associated with the present invention;

[0018] FIGS. 3A and 3B are illustrations of the interaction of the parties involved with the present invention;

[0019] FIG. 4 is an illustration of the logic of the Shopping Token Program (STP) of the present invention; and

[0020] FIG. 5 is an illustration of the shopping token created by the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0021] As used herein, the term "buyer" shall mean a person or organization that seeks or acquires goods from a seller through purchase or lease.

[0022] As used herein, the term "computer" shall mean a machine having a processor, a memory, and an operating system, capable of interaction with a user or other computer, and shall include without limitation desktop computers, notebook computers, personal digital assistants (PDAs), servers, handheld computers, and similar devices.

[0023] As used herein, the term "digital signature" shall mean a signature by either a buyer or a seller that has been authenticated using Public Key Cryptography.

[0024] As used herein, the term "goods" shall mean business or consumer goods or services.

[0025] As used herein, the term "Public Key Cryptography" shall mean an asymmetric scheme for verifying the source of a signature that uses a pair of keys for encryption in which the sender uses the private key to create a unique electronic number that can be read by anyone possessing the corresponding public key.

[0026] As used herein, the term "read only" shall mean a document that cannot be modified by a buyer or a seller.

[0027] As used herein, the term "seller" shall mean a person or an organization that sells goods over the Internet.

[0028] As used herein, the term "shopping token" shall mean an XML document that contains the agreement between the buyer and the seller in which the buyer and seller can initially modify the terms within the document, and that becomes a read only document when both the buyer and the seller have added their digital signatures to the document.

[0029] FIG. 1 is an illustration of computer network **90** associated with the present invention. Computer network **90** comprises local computer **95** electrically coupled to network **96**. Local computer **95** is electrically coupled to remote computer **94** and remote computer **93** via network **96**. Local computer **95** is also electrically coupled to server **91** and database **92** via network **96**. Network **96** may be a simplified network connection such as a local area network (LAN) or may be a larger network such as a wide area network (WAN) or the Internet. Furthermore, computer network **90** depicted in FIG. 1 is intended as a representation of a possible operating network containing the present invention and is not meant as an architectural limitation.

[0030] The internal configuration of a computer, including connection and orientation of the processor, memory, and input/output devices, is well known in the art. The present invention is a methodology that can be embodied in a computer program. Referring to FIG. 2, the methodology of the present invention is implemented on software by Shopping Token Program (STP) **200**. STP **200** described herein can be stored within the memory of any computer depicted in FIG. 1. Alternatively, STP **200** can be stored in an external storage device such as a removable disk, a CD-ROM, or a USB storage device. Memory **100** is illustrative of the memory within one of the computers of FIG. 1. Memory **100** also contains e-commerce website

120, private key **140**, and digital signature applet **180**. The present invention may interface with e-commerce website **120**, private key **140**, and digital signature applet **180** through memory **100**. As part of the present invention, memory **100** can be configured with STP **200**. Processor **106** can execute the instructions contained in STP **200**. Processor **106** is also able to display data on display **102** and accept user input on user input device **104**. Processor **106**, user input device **104**, display **102**, and memory **100** are part of a computer such as local computer **95** in FIG. 1. Processor **106** can communicate with other computers via network **96**.

[0031] In alternative embodiments, e-commerce website **120**, private key **140**, digital signature applet **180**, and STP **200** can be stored in the memory of other computers. Storing e-commerce website **120**, private key **140**, digital signature applet **180**, and STP **200** in the memory of other computers allows the processor workload to be distributed across a plurality of processors instead of a single processor. Further configurations of e-commerce website **120**, private key **140**, digital signature applet **180**, and STP **200** across various memories are known by persons of ordinary skill in the art. The present invention may be a method, a stand alone computer program, or a plug-in to an existing computer program. Persons of ordinary skill in the art are aware of how to configure computer programs, such as those described herein, to plug into an existing computer program.

[0032] E-commerce website **120** described herein is a website that is accessible via the Internet. E-commerce website **120** sells goods over the Internet. E-commerce website **120** typically has goods displayed for buyer selection. E-commerce website **120** also contains shipping, payment, and other terms that may be incorporated into shopping token **156** of the present invention.

[0033] Public key **140** described herein is part of the Public Key Cryptography encryption process. A trusted third party certifies public keys **140** for the buyer and the seller. The certificates are trusted by each party when they are used for digitally signing the shopping token **156**. Persons of ordinary skill in the art are aware of various methods for implementing Public Key Cryptography encryption and digital signatures.

[0034] Digital signature applet **180** is a downloadable computer program that allows the user to digitally sign a document. Digital signature applet **180** uses private key **140** to allow the buyer or seller to digitally sign the XML file. The Public key is used to perform the validation of the signatures. The certificate, which includes the public key and the private key **180,** may be stored on a merchant server, a smartcard, a PDA, or a computer.

[0035] FIGS. 3A and 3B illustrate the interaction of the parties involved in the creation of the shopping token of the present invention. In FIG. 3A, buyer **160** and seller **170** create and use shopping token **156**, which is stored on the buyer's computer. In FIG. 3B, buyer **160** and seller **170** create and use shopping token **156**, which is stored on with third party **150**. Buyer private key **152** and seller private key **154** may be like private key **120** in FIG. 2. Shopping token **156** is created when buyer **160** and seller **170** agree upon the terms of the contract and digitally sign the XML file using digital signature applet **180**, buyer private key **152**, and seller private key **154**. Once created, shopping token **156** may be accessed by buyer **160** and seller **170** as needed.

[0036] Shopping token **156** is an Extensible Markup Language (XML) document that is digitally signed by both buyer **160** and seller **170**. Neither buyer **160** nor seller **170** is able to modify shopping token **156**. Any attempt by buyer **160** or seller **170** to modify shopping token **156** destroys the digital signatures in shopping token **156**. Shopping token **156** is in a format

such that buyer **160**, seller **170**, and/or any other party cannot copy-and-paste the subject matter of shopping token **156** into another document. Buyer **160** and seller **170** may save and print shopping token **156** or may access shopping token **156** stored on buyer's **160** computer, seller's **170** computer, or third party's **150** computer.

[0037] FIG. 4 illustrates the logic of Shopping Token Program (STP) **200** of the present invention. STP **200** is the process for creating shopping token **156**. STP **200** starts (**202**) whenever a buyer launches a web browser. The buyer logs into an e-commerce website **120** with his username and password (**204**). The buyer then selects the goods he desires to purchase (**206**). When the buyer has finished selecting the goods for purchase, typically by selecting a "checkout" option, e-commerce website **120** creates the XML file for shopping token **156** (**208**). E-commerce website **120** adds the seller's personal information, information regarding the goods, and other terms to the fields in the XML file (**210**). The seller's personal information may include the seller's email address, name, address, and phone number. The information regarding the goods may be an itemized list of the goods purchased, and most typically will be the same as the description presented on e-commerce website **120**. The seller's terms are stored on e-commerce website **120** and include shipping, payment, arbitration, choice of law, risk of loss, and other contract terms as determined by a person of ordinary skill in the art. The buyer then enters his personal information into the fields in the XML file (**212**). Alternatively, e-commerce website **120** may enter the buyer's personal information into the XML file if the buyer's personal information is available. The buyer's personal information may include the buyer's email address, name, address, and phone number. The XML file is then presented to the parties for review (**214**).

[0038] STP **200** then determines whether the parties agree with the terms of the contract (**216**). If the parties agree with the terms of the contract, STP **200** proceeds to step **220**. If the parties do not agree with the terms of the contract, STP **200** allows the parties to modify the terms of the contract (**218**). STP **200** then proceeds to step **220**. STP 200 may be configured so that the buyer and seller can individually modify the terms and send the modification to the other party for approval. Persons of ordinary skill in the art are aware of methods for synchronizing the change control in such instances so that the buyer and seller both approve the final version of the terms. When the buyer and the seller agree to the terms in the contract, they indicate their agreement by digitally signing the XML file using their respective private keys (**220**).

[0039] When both the buyer and the seller have digitally signed the XML document, the XML document matures into a shopping token. Once shopping token **156** has been created, shopping token **156** cannot be modified. Any attempt to modify shopping token **156** will invalidate the digital signatures on shopping token **156**. STP **200** stores a copy of shopping token **156** with the buyer, seller, and/or third party (**222**). STP **200** indexes shopping token **156** so that it may be distinguished from other shopping tokens **156**. STP **200** then sends a copy of shopping token **156** to both the buyer and the seller (**224**) and ends (**226**).

[0040] FIG. 5 is an example of one embodiment of shopping token **300**. Shopping token **300** is a complete contract integrating the terms of the agreement between the buyer and the seller. Shopping token **300** comprises buyer information **302**, seller information **304**, item description **306**, terms **308**, warranty information **310**, and digital signatures **312**. Buyer information **302** is the buyer's personal information. Seller information **304** is the seller's personal information. Item description **306** is the itemized description of the goods sold. Terms **308** include payment information, shipping terms, payment terms, and any other terms as

determined by a person of ordinary skill in the art. Payment information is the method of payment, the payment date, and the payment amount. Shipping terms identifies the carrier and the place where legal title changes from the buyer to the seller. Payment terms are the payment terms that the buyer must fulfill in order to comply with the contract. Warranty information **310** contains the warranty information for the goods sold. Signatures **312** are the digital signatures added to the XML file to create shopping token **300**. Signatures **312** are created using digital signature applet **180**, buyer's private key **152**, and seller's private key **154**.

[0041] One example of the XML schema that can be used to implement shopping token **156** of the present invention is as follows:

```
<?xml version="1.0"?>
<Shopping Token>
        <!--seller-->
        <ADDRESS>
                <LOCATION1>123 Cherry Lane</LOCATION1>
                <LOCATION2>Dallas, Texas</LOCATION2>
                <LOCATION3>75205</LOCATION3>
                <TELEPHONE>214-555-2356</TELEPHONE>
        </ADDRESS>

        <!--buyer-->
        <ADDRESS>
                <LOCATION1>987 Elm Street</LOCATION1>
                <LOCATION2>Austin, Texas</LOCATION2>
                <LOCATION3>78758</LOCATION3>
                <TELEPHONE>512-555-9876</TELEPHONE>
        </ADDRESS>

        <!--item details-->
                <PRODUCT NAME>(4) Pirelli P6000 tires</PRODUCT NAME>
                <ORDER NUMBER>123</ORDER NUMBER>
                <ORDER DATE>11182003</ORDER DATE>
                <DELIVERY DATE >11252003</DELIVERY DATE>

        <!--warranty details-->
                <WARRANTY>Yes</WARRANTY>
                <DATE>11182004</DATE>
```

</Shopping Token>

Persons or ordinary skill in the art will be aware of how to modify the code segment above to achieve a XML schema for a particular shopping token.

[0042] One of the benefits of shopping token **156** of the present invention is that shopping token **156** can be created by the buyer using a web browser and digital signature applet **180**. When STP **200** is part of e-commerce website **120**, the buyer does not have to install any additional software to create shopping token **156**. Similarly, if e-commerce website **120** is an online auction website such as E-BAY®, then neither the buyer or the seller need to install any additional software to create shopping token **156**. Shopping token **156** may then be stored with the buyer, the seller, or a trusted third party.

[0043] Another benefit of shopping token **156** of the present invention is that either the buyer or the seller can use shopping token **156** as affirmative proof of the agreement between the parties. If one party suspects that the other party has breached the contract, the parties can look to shopping token **156** to settle the dispute. Shopping token **156** also increases the functionality of e-commerce website **120** by creating an audit trail for warranty information. For example, the warranty information can be included in shopping token **156**. If there is a warranty dispute, then the parties can look to shopping token **156** to identify whether a warranty existed, the terms of the warranty, and the effective dates of the warranty.

[0044] Additionally, shopping token **156** can be used for pricing promotions and pricing protection. For example, if a store has a policy of refunding 110% of the difference between the purchased price and any advertised competitors' prices within thirty days, the buyer can use shopping token **156** to prove the actual price paid and how long the price protection period lasts.

For a price promotion example, when a store lowers the price of a good, the store may want to refund the difference between the previous price and the current price to anyone who purchased the good within the last thirty days. The seller can analyze his list of shopping tokens to determine who purchased the good within the last thirty days and determine the price each buyer paid. The seller can then refund the difference to the buyers using the payment information stored in shopping token **156**.

[0045] Shopping token **156** of the present invention can also be used for customer surveys through a vendor rating system. For example, a system can be implemented in which potential buyers are able to view the seller's feedback rating as well as partially or fully view the individual shopping tokens. The potential buyers could then not only determine how often the seller satisfies his buyers, but also determine if the seller has had previous experience in the type and quantity of goods and the delivery period that the potential buyer is interested in.

[0046] With respect to the above description, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function, manner of operation, assembly, and use are deemed readily apparent and obvious to one of ordinary skill in the art. The present invention encompasses all equivalent relationships to those illustrated in the drawings and described in the specification. The novel spirit of the present invention is still embodied by reordering or deleting some of the steps contained in this disclosure. The spirit of the invention is not meant to be limited in any way except by proper construction of the following claims.